

from the region of the Azores to the coasts of the British Isles and France a little fog was met, chiefly during the first 12 days. No single 5° square in the areas from 60° eastward had fog on more than 4 days.

Near the American coast from Nova Scotia to Hatteras there was about as much fog as in the average February, and the occurrences were well scattered through the month. However, one square here, 35° to 40° N., 70° to 75° W., went far beyond the average amount, having fog on 11 days, so that it surpassed all other North Atlantic areas in fog frequency.

From Hatteras to the southern tip of Florida, fog was, as usual, very infrequent. In the northern Gulf of Mexico there generally was more than the February normal

amount. The northwestern portion, 25° to 30° N., 90° to 95° W., led other Gulf areas, having 7 foggy days, all during the first half of the month; but this was less fog than had occurred there during January.

Several mishaps in American waters are laid to the fog. During the 2d and 3d, three collisions occurred in New York harbor and the Delaware River. Late on the 26th the American freight steamer *Lillian* was greatly damaged in collision off the coast of New Jersey, and sank about 18 hours later, without loss of life.

The American tanker *Lighburne* grounded off Block Island during fog on the evening of the 9th. All hands were saved and even part of the cargo, but the vessel itself will be almost surely a total loss.

OCEAN GALES AND STORMS, FEBRUARY 1939

Vessel	Voyage		Position at time of lowest barometer		Gale began February	Time of lowest barometer, February	Gale ended February	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Silverteak, Br. M. S.	Dakar	Halifax	35 26 N.	56 29 W.	1 31	Noon, 1.	2	29.72	SW	WNW, 10.	NNW	WNW, 10.	W-NW.
Exeter, Am. S. S.	New York	Gibraltar	39 54 N.	38 00 W.	1	9p, 1.	2	29.44	SW	SW, 8.	SW	SW, 9.	SW-W.
Oakwood, Am. S. S.	Beaumont	Hayre	32 59 N.	49 19 W.	2	1a, 2.	3	28.98	W	W, 7.	NW	NW, 10.	SW-WNW.
W. S. Rheem, Am. S. S.	Ostermoor	Cristobal	34 18 N.	36 50 W.	2	4a, 3.	3	29.77	SW	SW, 8.	WNW	WNW, 10.	SW-WNW.
Belgian Gulf, Belg. M. S.	Port Arthur	London	44 08 N.	26 50 W.	3	10p, 3.	4	29.40	SSW	S, 10.	SSW	S, 10.	S-SW.
Exmoor, Am. S. S.	New York	Casablanca	36 55 N.	46 37 W.	3	2a, 5.	6	29.42	WSW	SW, 10.	W	SW, 10.	WSW-SW.
Washington, Am. S. S.	Cobh	New York	47 58 N.	39 25 W.	5	4p, 5.	6	28.10	E	Var., 6.	WNW	NW, 10.	ENE-Var-NNW.
Pres. Roosevelt, Am. S. S.	New York	Cobh	46 50 N.	37 50 W.	5	6p, 5.	6	28.10	SW	W, 10.	SW	W, 12.	SSW-WNW.
Schuylikill, Br. M. S.	Plymouth	Cristobal	40 10 N.	29 12 W.	5	7p, 5.	6	29.35	S	SW, 9.	W	SW, 10.	SSW-W.
Exiria, Am. S. S.	New York	Gibraltar	39 20 N.	45 00 W.	7	6p, 7.	9	28.96	S	S, 7.	WSW	W, 10.	S-SW.
Gand, Belg. S. S.	New Orleans	Hayre	40 06 N.	57 08 W.	7	9p, 7.	9	28.81	E	N, 12.	NNW	N, 12.	SW-N.
Sundance, Am. S. S.	Charleston	Avonmouth	41 18 N.	55 30 W.	7	10p, 7.	9	28.59	E	NNE, 12.	NW	NNE, 12.	E-N.
Express, Am. S. S.	Gibraltar	New York	35 21 N.	47 55 W.	7	3a, 8.	8	29.29	SW	SW, 10.	NW	WNW, 10.	S-WNW.
Tablan, Du. M. S.	Sabang	Halifax	33 54 N.	45 40 W.	8	9a, 8.	9	29.46	SW	WSW, 9.	NW	W, 10.	SW-W.
Barendrecht, Du. M. S.	Cristobal	Rotterdam	35 54 N.	38 47 W.	8	3p, 8.	8	29.44	SW	W, 8.	W	SW, 10.	SW-W.
Europe, Nor. M. S.	Port Arthur	Liverpool	41 44 N.	37 12 W.	7	6p, 8.	10	28.72	SSW	SSW, 11.	SSW	SSW, 11.	SSW-WSW.
Atlanta City, Am. S. S.	Gibraltar	New York	35 11 N.	35 53 W.	8	7p, 8.	10	29.57	SW	SSW, 10.	W	SSW, 10.	SSW-W.
American Trader, Am. S. S.	New York	Plymouth	46 00 N.	39 18 W.	8	10p, 8.	10	28.40	E	SSE, 3.	SSW	SW, 11.	SSW-Var-WSW.
Noordam, Du. M. S.	do	Rotterdam	46 21 N.	36 47 W.	8	Mdt, 8.	9	27.90	ENE	SSW, 8.	S	SW, 9.	SSE-SW.
American Farmer, Am. S. S.	London	Boston	48 10 N.	33 56 W.	9	4a, 9.	9	28.33	S	S, 8.	SSW	SSW, 11.	ESE-S-SSW.
Zaandam, Du. M. S.	Rotterdam	New York	47 28 N.	37 27 W.	7	4a, 9.	10	28.12	SSW	SSE, 3.	NNW	NW, 10.	SSE-NW.
Scanmail, Am. S. S.	New York	Gothenburg	42 18 N.	46 48 W.	9	Noon, 9.	10	29.49	W	NNW, 9.	N	NW, 10.	NNW-WNW.
Black Condor, Am. S. S.	Chester, Pa.	Rotterdam	40 20 N.	65 25 W.	9	2p, 9.	10	30.19	WSW	NW, 7.	N	NNW, 9.	WSW-WNW.
Gand, Belg. S. S.	New Orleans	Hayre	41 28 N.	51 36 W.	10	4a, 10.	11	29.89	NNE	NNE, 7.	NNE	NNE, 9.	W-NNE.
Tablan, Du. M. S.	Sabang	Halifax	37 10 N.	50 14 W.	10	6a, 10.	10	29.45	WNW	WNW, 9.	N	WNW, 9.	WNW-NNE.
Express, Am. S. S.	Gibraltar	New York	35 02 N.	52 36 W.	10	8a, 10.	10	29.76	WNW	NW, 10.	N	NW, 10.	WNW-NNW.
Zaremba, Am. S. S.	New York	Dakar	30 54 N.	44 42 W.	10	4p, 10.	10	29.58	WSW	WNW, 9.	WNW	WNW, 10.	NW-SW-NW.
Schuylikill, Br. M. S.	Plymouth	Cristobal	31 00 N.	42 30 W.	10	5p, 10.	11	29.59	SW	W, 8.	NW	NW, 10.	SW-WNW.
Kattegat, Ger. M. S.	Rotterdam	Baytown	51 14 N.	46 50 W.	10	7p, 10.	11	29.49	W	NW, 11.	NNW	NNE, 12.	WNW-NNE.
Atlanta City, Am. S. S.	Gibraltar	New York	35 10 N.	39 54 W.	11	2a, 11.	12	29.10	NNE	N, 4.	NE	N, 9.	W-NE.
Steel Seafarer, Am. S. S.	do	Boston	35 30 N.	44 48 W.	10	4p, 11.	11	29.41	S	S, 8.	S	S, 10.	W-NE.
Baarn, Du. S. S.	Curacao	Liverpool	35 30 N.	44 48 W.	10	4p, 11.	11	29.22	NNW	N, 9.	NNE	NNW, 10.	NNW-NNE.
Exiria, Am. S. S.	New York	Gibraltar	37 36 N.	12 00 W.	13	5p, 13.	13	30.29	NNE	NNE, 7.	NNE	NNE, 9.	SSW-SW.
American Shipper, Am. S. S.	Belfast	Boston	54 32 N.	22 09 W.	14	8p, 14.	15	29.74	SSW	SSW, 7.	W	W, 11.	SSW-SW.
Scanmail, Am. S. S.	New York	Gothenburg	58 08 N.	12 11 W.	15	5p, 15.	16	29.41	SW	W, 8.	W	WSW, 9.	WSW-W.
American Shipper, Am. S. S.	Belfast	Boston	53 37 N.	28 51 W.	16	4p, 16.	17	29.88	SW	SW, 9.	WSW	WSW, 9.	WSW-WSW.
do	do	do	50 10 N.	42 22 W.	19	4p, 19.	20	29.18	SSW	SW, 11.	WNW	SW, 11.	SW-W.
Scanstades, Am. S. S.	Copenhagen	New York	53 30 N.	32 00 W.	19	6a, 20.	21	29.03	SW	WSW, 9.	WNW	SW, 10.	SW-WSW.
Mormacsun, Am. S. S.	do	Boston	57 03 N.	23 30 W.	23	2a, 23.	23	29.25	W	WNW, 9.	WNW	NW, 10.	W.
do	do	do	55 45 N.	29 00 W.	24	6a, 24.	26	29.40	W	WSW, 7.	W	W, 11.	S-W.
Manhattan, Am. S. S.	Cobh	New York	49 06 N.	31 18 W.	27	10a, 27.	27	29.78	WNW	W, 10.	WSW	NW, 11.	W-WNW.
Black Condor, Am. S. S.	Antwerp	do	50 10 N.	9 10 W.	28	10a, 28.	28	29.27	W	W, 7.	WSW	NW, 10.	W-NW.
Manhattan, Am. S. S.	Cobh	do	47 18 N.	38 00 W.	28	10a, 28.	4 1	29.14	SSW	WSW, 10.	NW	WNW, 10.	SSW-N.
NORTH PACIFIC OCEAN													
Ixion, Br. S. S.	Yokohama	Vancouver, B. C.	50 01 N.	155 30 W.	1 31	13p, 31.	2	29.12	W	SSW, 6.	NW	W, 10.	SSE-SSW.
Heian Maru, Jap. M. S.	do	do	50 42 N.	160 18 W.	1	1p, 31.	2	29.16	WNW	NE, 4.	NW	WNW, 8.	ESE-E-ESE.
Maunalei, Am. S. S.	Honolulu	San Francisco	24 18 N.	153 20 W.	2	2p, 2.	2	29.90	SE	E, 8.	ESE	E, 8.	None.
La Placencia, Am. S. S.	Vancouver, B. C.	Port San Luis	47 10 N.	125 15 W.	2	6p, 2.	2	29.49	SE	SE, 8.	SE	SE, 9.	None.
Ludington, U. S. A. T.	Honolulu	Midway Is.	27 21 N.	176 41 W.	2	6a, 2.	4	29.82	S	NNE, 8.	E	NNE, 11.	SSW-NNE.
Mapele, Am. S. S.	Portland, Ore.	Honolulu	43 24 N.	129 54 W.	1	2p, 2.	4	29.66	SSE	W, 8.	NNW	NNW, 8.	W-WNW.
Charcas, Am. S. S.	Acajutla	Salina Cruz	15 37 N.	93 41 W.	3	4p, 3.	5	29.81	NW	WNW, 3.	NNE	N, 10.	WNW-NW.
Manoeran, Du. M. S.	Legaspi, P. I.	Los Angeles	33 12 N.	159 54 E.	4	2p, 4.	5	29.30	WSW	WSW, 7.	W	W, 9.	SSW-WNW.
Dalblair, Br. S. S.	San Francisco	Milke	31 — N.	140 — E.	5	11p, 5.	8	29.64	S	NNW, 10.	NW	NNW, 10.	SSE - NNW
Kunikawa Maru, Jap. M. S.	Yokohama	San Francisco	45 45 N.	173 28 E.	6	Noon, 9.	—	28.53	ESE	S, 5.	—	SE, 9.	ESE-SW.
Maliko, Am. S. S.	San Francisco	Honolulu	37 26 N.	123 47 W.	7	8p, 7.	8	29.81	W	W, 8.	NW	NW, 10.	W-WNW.
Maunalei, Am. S. S.	Honolulu	San Francisco	37 06 N.	125 12 W.	8	3p, 8.	8	30.00	NW	NW, 8.	NW	NW, 8.	S-SW.
Manoeran, Du. M. S.	Legaspi, P. I.	Los Angeles	42 12 N.	160 00 W.	8	11p, 9.	10	29.38	SSW	S, 9.	SW	S, 10.	S-SW.
Nasiro Maru, Jap. M. S.	Shanghai	San Pedro	43 12 N.	175 24 W.	9	Mdt, 9.	10	29.24	WSW	WSW, 8.	WSW	WSW, 8.	—

1 January.

2 Position approximate.

3 Barometer uncorrected.

4 March.

OCEAN GALES AND STORMS, FEBRUARY 1939—Continued

Vessel	Voyage		Position at time of lowest barometer		Gale began February	Time of lowest barometer, February	Gale ended February	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH PACIFIC OCEAN—Continued													
Pres. Taft, Am. S. S.	Honolulu	Yokohama	34 37 N.	150 42 E.	10	Noon, 10.	11	29.62	NW	NNW, 5.	NW	NW, 9.	N-NW.
Peter Maersk, Dan. M. S.	Yokohama	Los Angeles	40 06 N.	151 54 E.	11	10p, 10.	11	29.46	NNW	W, 7.	NW	NNW, 8.	W-NNW.
Bralanta, Nor. M. S.	Los Angeles	Yokohama	34 42 N.	174 56 W.	10	11a, 11.	11	29.37	S	SW, 6.	W	W, 10.	SW-WSW.
Marchen Maersk, Dan.	do	do	34 00 N.	176 06 E.	11	1a, 12.	13	29.32	S	SW, 9.	W	WSW, 10.	SW-WSW.
Lightship #2, U. S.	On station	do	48 30 N.	125 00 W.	13	4p, 14.	13	29.74	S	NE, 2.	W	SSE, 8.	SW-W.
Bralanta, Nor. M. S.	Los Angeles	Yokohama	34 43 N.	178 35 E.	12	6p, 14.	15	29.41	W	SW, 10.	WNW	W, 10.	SW-W.
Zuiyo Maru, Jap. S. S.	Osaka	Los Angeles	39 54 N.	174 03 W.	14	4a, 14.	15	29.97	W	WSW, 8.	NW	WSW, 9.	WNW-NW.
Huzisan Maru, Jap. M. S.	Yokohama	do	39 00 N.	159 00 E.	14	6a, 14.	14	29.50	WNW	WNW, 8.	NW	NW, 8.	WNW-NW.
Peter Maersk, Dan. M. S.	do	do	46 30 N.	174 00 W.	14	4p, 14.	14	28.83	NNE	NNE, 8.	N	NNE, 8.	NE-N.
Sawokla, Am. M. S.	Hong Kong	do	33 42 N.	155 07 E.	16	6a, 16.	16	29.25	SSE	W, 8.	NNW	SSW, 9.	SSW-NW.
Marchen Maersk, Dan. M. S.	Los Angeles	Yokohama	32 00 N.	157 21 E.	16	10a, 16.	16	29.38	S	SW, 10.	N	WSW, 10.	S-WNW.
Bralanta, Nor. M. S.	do	do	34 36 N.	170 14 E.	16	11p, 16.	17	29.21	S	SW, 9.	W	W, 12.	S-W.
Mindanao, Phil. S. S.	Manila	San Francisco	36 30 N.	178 54 E.	16	Noon, 17.	17	29.23	S	WSW, 9.	W	WSW, 9.	S-W.
Huzisan Maru, Jap. M. S.	Yokohama	Los Angeles	40 06 N.	178 02 E.	16	Noon, 17.	17	28.67	S	SSW, 9.	SW	SW, 11.	S-SW.
Getuyo Maru, Jap. M. S.	Kobe	do	45 42 N.	173 00 E.	17	3p, 17.	18	28.56	NE	N, 10.	WSW	N, 10.	NNE-NW.
Beckenham, Br. S. S.	Muroran	Vancouver, B. C.	46 11 N.	176 00 E.	17	2a, 18.	18	28.26	NNE	NW, 8.	W	NW, 8.	NNE-NW.
Sawokla, Am. M. S.	Hong Kong	Los Angeles	33 20 N.	174 07 E.	19	6a, 20.	20	29.61	SSW	SW, 8.	WNW	SW, 8.	SSW-W.
W. B. Walker, Br. M. S.	Yokohama	San Francisco	36 10 N.	146 55 E.	21	2a, 22.	22	29.19	ESE	WSW, 8.	NW	NNW, 10.	S-NNW.
Gefion, Nor. M. S.	Los Angeles	Kobe	32 58 N.	160 23 E.	22	10p, 22.	23	29.76	SW	W, 9.	NW	W, 10.	SSW-W.
Floridian, Am. S. S.	Balboa	Los Angeles	15 36 N.	96 36 W.	23	5p, 23.	23	29.88	NNW	W, 3.	NE	N, 8.	NE-W-NNW.
Skjeldred, Nor. M. S.	Yokohama	San Francisco	42 24 N.	167 36 E.	23	11a, 23.	24	29.42	ENE	E, 8.	ENE	E, 8.	ENE.
Pres. Coolidge, Am. S. S.	Honolulu	do	26 30 N.	149 24 W.	27	2a, 27.	27	30.10	E	E, 4.	E	E, 8.	E.

* Position approximate.

* Barometer uncorrected.

NORTH PACIFIC OCEAN, FEBRUARY 1939

By WILLIS E. HURD

Atmospheric pressure.—During most of February 1939 low pressure overlay the Bering Sea and the northwestern part of the North Pacific Ocean, with the average center in the Bering Sea. At St. Paul Island pressure for the month was 29.42 inches, which is 0.23 inch below the normal. The lowest barometer reading at St. Paul—also the lowest for the month in Pacific waters—was 28.00 inches on the 13th.

In the eastern North Pacific, particularly between the American coast and longitude 160° W., lows were unusually deficient for the month. Throughout middle latitudes in this area, pressure was almost unbrokenly high and at the crest, near 35°–45° N., 135° to 145° W., the barometer averaged close to 30.50 inches. Along the American coast, from Kodiak, Alaska, to Mazatlan, Mexico, pressure was abnormally high.

In the Far East the oceanic extension of the Asiatic anticyclone was unusually well developed, with the average pressure at Naha, Nansei Islands, 30.13 inches, which is 0.08 inch above the normal.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, February 1939, at selected stations

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow	30.18	+0.06	30.82	6	29.64	13
Dutch Harbor	29.45	— .15	30.28	5	28.50	12
St. Paul	29.42	— .23	30.20	5	28.00	13
Kodiak	29.70	+ .08	30.34	6	28.90	11
Juneau	29.99	+ .07	30.44	19	29.00	11
Tatoosh Island	30.08	+ .08	30.75	16	29.47	5
San Francisco	30.16	+ .06	30.48	14	29.67	3
Mazatlan	29.95	+ .02	30.02	5, 13, 14, 19	29.86	26
Honolulu	30.02	— .03	30.17	16	29.78	2
Midway Island	30.01	+ .02	30.21	28	29.83	14
Guam	29.88	— .03	30.00	19	29.77	2
Manila	29.91	+ .02	30.03	15	29.83	2-5, 11, 26
Hong Kong	30.07	+ .01	30.27	15	29.96	1
Naha	30.13	+ .08	30.33	8	29.86	28
Titijima	30.06	— .08	30.27	16	29.68	6
Petropavlosk	29.56	— .12	30.24	26	29.03	9

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Storms and gales of the extratropics.—Storminess on the North Pacific during February was confined almost altogether, so far as reports indicate, to the northwestern quarter of the ocean, with southern boundary along the 30th parallel from longitude 140° E. to the 180th meridian, and thence northeastward to about the 50th parallel at longitude 150° W. Outside of this extensive area, the few gales reported occurred near the coastal waters of the United States, on the 1st to 3d and on the 8th, and the 13th, with the exception of two occurrences of tradewinds intensified to force 8 on the 2d and 27th northeast of the Hawaiian Islands, and an isolated gale of force 11 encountered by the U. S. A. T. *Ludington* near Midway Island on the 2d.

The month as a whole was far less stormy than the preceding January, both with respect to the intensity of the winds and to the areal extent of their occurrence. Only one gale in February was reported to have attained the strength of force 12. That was encountered on the 17th by the Norwegian motorship *Bralanta* near 34° N., 168° E. There were two gales of force 11, one already mentioned as experienced by the *Ludington* on the 2d; the other occurred on the 17th near 40° N., 178° E., where it was reported by the Japanese motorship *Huzisan Maru*. Winds attaining force 10 occurred on some seven or eight other dates, of which five, the 5th, 12th, 14th, 16th, and 23d, had the high winds between parallels 30° and 35° N., to the westward of the 180th meridian.

The lowest barometer reading reported by a ship in the month was 28.26 inches, read on the British steamship *Beckenham* during a northwest gale of force 8 on the 18th close to 46° N., 176° E.

At the beginning of the month stormy weather was mostly confined to two small areas, one in the neighborhood of 50° N., 150° to 160° W., on the 1st and 2d; the other to the near coastal region of Washington and Oregon on the 1st to 3d. In addition, isolated gales occurred near Midway Island and the eastern Hawaiian Islands on the 2d.

In east longitudes there were scattered gales beginning on the 4th and 5th, the strongest of which, a wind of force 10, occurred on the 5th in a small cyclone then centered off southeastern Japan. Gales continued to be localized